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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/738,543	12/17/2003	Torsten Gottschalk-Gaudig	WAS 0611 PUS / Wa 10239-S	8271
22045	7590	08/31/2007	EXAMINER	
BROOKS KUSHMAN P.C. 1000 TOWN CENTER TWENTY-SECOND FLOOR SOUTHFIELD, MI 48075			TSOY, ELENA	
			ART UNIT	PAPER NUMBER
			1762	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	10/738,543		GOTTSCHALK-GAUDIG ET AL.	
	Examiner		Art Unit	
	Elena Tsoy		1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6 and 7 is/are pending in the application.
- 4a) Of the above claim(s) 1-3 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Response to Amendment

Amendment filed on July 17, 2007 has been entered. Claims 4-5, and 8-14 have been cancelled. Claims 1-3, and 6-7 are pending in the application. Claims 1-3, and 6 are withdrawn from consideration as directed to a non-elected invention.

Election/Restrictions

Applicants continue to traverse the restriction requirement, as its basis is in error.

However, the requirement was made FINAL. Applicants may submit a petition to Director to overturn the restriction requirement.

Applicants state that Claim 7 has been amended to be dependent upon claim 1, thus incorporating all the limitations of claim 1. Per MPEP 821.04, the claims, being product and process of manufacture claims, should be rejoined.

The argument is unconvincing. First of all, claim 7 does not depend upon claim 1. According to MPEP 2113 [R-1], PRODUCT-BY-PROCESS CLAIMS ARE NOT LIMITED TO THE MANIPULATIONS OF THE RECITED STEPS, ONLY THE STRUCTURE IMPLIED BY THE STEPS. Even though product-by-process claims are limited by and defined by the process, **determination of patentability is based on the product itself**. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Secondly, according to MPEP 821.04, the propriety of a restriction requirement should be reconsidered when all the claims directed to the elected invention are in condition for **allowance**, and the nonelected invention(s) should be considered

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for rejoinder. Since claim 7 is not allowable, the nonelected invention(s) should not be considered for rejoinder.

Claim Objections

1. Claim 7 is objected to because of the following informalities: limitations of withdrawn claim 1 should be incorporated into claim 7.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Rejection of claim 7 under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a carbon content of more than "0" and up to 20 wt %, does not reasonably provide enablement for "0" carbon content has been withdrawn due to amendment.
4. Rejection of claim 7 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement has been withdrawn due to amendment.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 7 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Barthel et al (US 5686054).

Barthel et al teach a hydrophobic silica prepared by silylating a *pyrogenic* silica (See column 3, lines 59-64) having primary particle size of from 2 to 50 nm (See column 3, line 53) with a specific surface area of 150-250 m²/g (See column 3, lines 56-57), e.g. 200 m²/g (See column 11, lines 1-6) with a silylating agent of formula R¹_nSiX_{4-n} wherein n, R¹ and X are identical to that of claimed invention (See column 4, lines 24+) such as dimethyldichlorosilane (See column 10, line 65) in an amount of 2-100 parts by weight per 100 parts of silica (See column 6, lines 41-45). Clearly, the degree of hydrophobicity of silylated silica would depend on the amount of silylating agent: silica treated with an amount of silane in lower part of the range would be less hydrophobic than treated with an amount of silane in higher part of the range. Therefore, if partly hydrophobic silica is desired, the silylating agent should be used with e.g. 2-3 parts per 100 parts of above described silica.

If the use of 2-3 parts of silane per 100g of silica could be argued, it is well settled that **overlapping** ranges are *prima facie* evidence of obviousness. *In re Malagari*, 184 USPQ 549 (CCPA 1974). Therefore, it would have been obvious to one having ordinary skill in the art to have selected the portion of Barthel et al's range that corresponds to the claimed range.

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It is the Examiner's position that *pyrogenic* silica having $200 \text{ m}^2/\text{g}$ (See column 11, lines 1-6) treated with silane of claimed formula $\text{R}^1_n\text{SiX}_{4-n}$ in an amount of the portion of Barthel et al's range that corresponds to the claimed range, per 100 parts of silica would have all claimed properties because the process of Barthel et al would be substantially identical to that of claimed invention (See Example 1 of the specification as originally filed). Namely, the treated silica would have a contact angle θ in air for water of less than 180° , the degree of coverage τ of the surface of the silica with silylating agent residues, based on the total silica particle surface area, being $1\% < \tau < 50\%$, the density of the surface silanol groups SiOH ranging between a minimum of 0.9 and a maximum of 1.7 SiOH/nm^2 particle surface area, and the particles having a carbon content of less than 0.1% by weight and up to 20% by weight, and a methanol number of less than 30.

8. Claim 7 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tojo et al (US 5278204).

Tojo et al are applied here for the same reasons as set forth in paragraph 8 of the Office Action mailed on 3/15/2007. Tojo et al disclose silane-treated silica by treating dry method silica (See column 5, line 4) having a specific surface area of $100\text{-}300 \text{ m}^2/\text{g}$ (See column 5, lines 7-8), with a silane having structure of claimed formula I, e.g. allyltrimethoxysilane (See column 4, line 65) in such an amount as to achieve a carbon content of 0.1% -5% by weight based on treated silica (See column 5, lines 16-20). Note that allyltrimethoxysilane has 22.2 wt % of C. Therefore, a carbon content of 0.1% -5 wt % would be achieved by adding 0.45-22.5 g (0.027 mmol/g – 1.38 mmol/g) of the allyltrimethoxysilane per 100 g of silica, i.e. 0.027-1.38 mmol/g per 100-300

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m^2/g . Thus, per 100 m^2/g of silica, the silane should be added in an amount from 0.027-1.38 mmol/g to 0.009-0.46 mmol/g so as to achieve a carbon content of 0.1% -5% by weight.

It is well settled that **overlapping** ranges are *prima facie* evidence of obviousness. *In re Malagari*, 184 USPQ 549 (CCPA 1974). Therefore, it would have been obvious to one having ordinary skill in the art to have selected the portion of Tojo et al's range that corresponds to the claimed range.

It is the Examiner's position that dry method silica having treated with silane of claimed formula $\text{R}^1_n\text{SiX}_{4-n}$ in an amount of the portion of Tojo et al's range that corresponds to the claimed range, per 100 parts of silica would have all claimed properties because the process of Tojo et al would be substantially identical to that of claimed invention.

Response to Arguments

9. Applicants' arguments filed July 17, 2007 have been fully considered but they are not persuasive.

Barthel et al

(A) Applicants argue that Barthel is directed to fully hydrophobic silicas in which all surface silanol groups are silylated. These silicas are highly apolar. See, e.g. column 1, lines 43 - 47. See also column 8, line 62 to page 9, line 9, where Barthel indicates that no silanol groups can be detected, and where the methanol number is greater than or equal to 50, more preferably greater than 65 and 75, respectively.

The Examiner respectfully disagrees with this argument for the reasons discussed above in paragraph 7.

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As to silanol groups not being detected, Barthel et al teach at least two embodiments where either pyrogenic silica from a burner (See column 3, lines 65-66) or *silylated* silica (See column 4, lines 1-31) is used as a starting material. Furthermore, Barthel et al teach that silane can be used in a wide range of from 2 parts to 100 parts per 100 g of silica. Therefore, silicas of wide range of hydrophobicity can be prepared using a method of Barthel et al: e.g. those having silanol groups and those having no silanol groups.

(B) Applicants argue that Barthel does not disclose the process limitations, i.e. an amount of 0.015 mmol/g to 0.15 mmol/g per 100 m²/g of BET surface area, nor does Barthel disclose any of the claim limitations of surface silanol content of 0.9 to 1.7 SiOH/mn², methanol number, etc.

The Examiner respectfully disagrees with this argument. As was discussed above, Barthel range of 2-100 parts of silane *overlaps* claimed amount of 0.015 mmol/g to 0.15 mmol/g per 100 m²/g of BET surface area. It is well settled that overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one having ordinary skill in the art to have selected the portion of Barthel et al's range that corresponds to the claimed range resulting in silylated silica having all claimed properties.

(C) Applicants argue that as can be seen from the tabulated results, the carbon contents of each of the silicas were substantially identical, yet the second and third examples (comparative) were not water wettable (i. e. completely hydrophobic), with methanol numbers much higher than those claimed, although still lower than those of Barthel, who requires a methanol number of 50, minimally. The comparative examples use amounts of silylating agents within the range disclosed by Barthel and cited by the Examiner on page 4 of the Office Action, yet did not result in a silica as claimed in claim 7.

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The Examiner respectfully disagrees with this argument. First of all, on page 4 of the Office Action the Examiner described a process *completely different* from processes of Applicants' comparative examples 2 and 3.

The Examiner described a process exactly as Example 1 of the specification as originally filed, namely, treating silica having **200 m²/g** (not 100 m²/g as in comp. Example 2), with **2.86 g** of dimethyldichlorosilane (not 4.29 g or 9.9 g as in comp. Examples 2 and 3), per 100 g of silica such that silica was treated with 0.11 mmol/g of silane per 100 m²/g of silica whereas in the comparative example 2, Applicants used 0.22 mmol/g of silane per 100 m²/g of silica, and in the comparative example 3, Applicants used 0.29 mmol/g of silane per 100 m²/g of silica.

Tojo et al

Applicants argue that Tojo does not teach or suggest the claim requirements of the silica of claim 7. The residual silanol content is not disclosed, and neither is the methanol number.

The Examiner respectfully disagrees with this argument. Tojo discloses a process which is substantially identical to that of claim 1 except for overlapping range of an amount of a silane. However, **overlapping** ranges are considered to be *prima facie* obvious.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy, Ph.D.
Primary Examiner
Art Unit 1762

ELENA TSOY
PRIMARY EXAMINER
ETsoy

August 17, 2007